Interprovincial mobility and earnings

André Bernard, Ross Finnie and Benoît St-Jean

Interprovincial migration is an important component of the demographic profiles of the provinces. It affects not only the size but also the composition of their populations and directly affects both demand for public services and tax revenues. It is related to a variety of more specific human resource issues such as public investment in education and job training, since interprovincial migrants tend to be more educated and more highly skilled (Dion and Coulombe 2008) (Coulombe and Tremblay 2006). For provinces with lower demographic growth, the issue of interprovincial migration is of particular importance. Demographic growth has been very uneven provincially, ranging from a decline of 1.5% in Newfoundland and Labrador to a growth of 10.6% in Alberta between 2001 and 2006.[1] Interprovincial migration is a key concern for provinces with low birth rates, struggling to attract a sizeable share of immigrants.

For individuals—especially those in the labour force—interprovincial migration often provides an opportunity to access other labour markets and get a better job with better pay. From a national perspective, interprovincial mobility is desirable when workers from provinces with high unemployment move to provinces with labour shortages. These flows can significantly increase employment levels and therefore reduce the number of people receiving transfer payments like Employment Insurance (EI) benefits.

The recent literature[2] suggests that interprovincial mobility has many advantages in terms of national economic performance but that it tends to increase inequalities between provinces.[3] It has a large and positive effect on aggregate production in Canada because it leads to an increase in overall employment and to an economically efficient re-allocation of workers from provinces with lower productivity to provinces with

Data source and definitions

The **Longitudinal Administrative Data** (LAD)[4] file is a 20% sample of the T1 Family File (T1FF), a yearly cross-sectional file of all taxfilers and their families. Census families are created from information provided annually to the Canada Revenue Agency on personal income tax returns and applications for the Child Tax Benefit. Taxfilers are followed over time with family information appended to each individual's record on an annual basis, thereby providing not only individual but also family-level information on sources of income, taxes and basic socio-demographic characteristics including city and province of residence. Data from 1992 to 2004 are used in this paper. The sample is restricted to individuals age 20 to 54 who are not full-time students. Individuals from the territories were excluded due to small sample counts. Individuals leaving the country are excluded for the years they were abroad. Similarly, individuals who die are censored from the sample only after their death.

The LAD covers approximately 96% of the population, comparing favourably with other sources, including the census. Given that the LAD is a 20% sample of taxfilers, the number of observations is very high—some 4.8 million for 2004 alone—which is important for studies focusing on infrequent events like interprovincial migration.

An individual's province of residence is the one in which taxes were payable, essentially where the person was living on December 31st of a given year.[5] No other condition such as minimum years of residence in the province of origin was set. Conceptually, not imposing such conditions allows the inclusion of very mobile populations (multiple movers), which may include those most likely to respond to market or policy changes. Short-term stays in other provinces during a given year (for example, young people with summer jobs in other provinces) are considered non-migrations. The out-migration rate is defined as the percentage of residents of a province in year t who had left the province in year $t+1$. The in-migration rate is the percentage of residents outside a province in year t who had moved to the province by year $t+1$. The migration rates for any pair of years are computed taking into account only individuals residing in Canada and in the database in both years.

André Bernard is with the Labour and Household Surveys Analysis Division. He can be reached at 613-951-4660. Ross Finnie is with the University of Ottawa and the Business and Labour Market Analysis Division at Statistics Canada. He can be reached at 613-562-5800, ext. 4552. Benoît St-Jean is with Citizenship and Immigration Canada. He can be reached at 613-946-6050. The authors can also be reached at perspectives@statcan.gc.ca.

Table 1 Annual mobility rates, persons age 20 to 54

	1992 to 1993	1996 to 1997	1999 to 2000	2002 to 2003	2003 to 2004
			%		
Out-migration	1.1	1.1	1.0	0.9	0.9
Newfoundland and Labrador	2.3	3.7	2.7	2.1	2.5
Prince Edward Island	3.6	2.9	2.8	2.0	2.1
Nova Scotia	2.2	2.4	2.1	1.9	1.9
New Brunswick	1.9	2.2	2.0	1.7	1.7
Quebec	0.5	0.6	0.5	0.4	0.4
Ontario	0.8	0.7	0.6	0.6	0.6
Manitoba	1.8	2.1	1.7	1.4	1.5
Saskatchewan	2.7	2.4	2.7	2.0	2.1
Alberta	2.1	1.7	1.7	1.8	1.7
British Columbia	1.2	1.5	1.5	1.2	1.1
In-migration	1.1	1.1	1.0	0.9	0.9
Newfoundland and Labrador	1.4	1.4	1.7	2.5	1.6
Prince Edward Island	3.1	2.4	2.8	2.1	2.1
Nova Scotia	2.1	2.0	2.0	1.9	1.7
New Brunswick	1.6	1.6	1.6	1.6	1.6
Quebec	0.4	0.3	0.3	0.3	0.3
Ontario	0.7	0.8	0.8	0.5	0.5
Manitoba	1.4	1.3	1.3	1.2	1.2
Saskatchewan	1.8	1.9	1.5	1.6	1.4
Alberta	2.2	3.3	2.5	2.1	2.2
British Columbia	2.4	1.5	1.3	1.4	1.5
Net migration	0.0	0.0	0.0	0.0	0.0
Newfoundland and Labrador	-0.9	-2.3	-1.0	0.4	-0.9
Prince Edward Island	-0.5	-0.5	0.0	0.1	0.0
Nova Scotia	-0.1	-0.4	-0.1	0.0	-0.2
New Brunswick	-0.3	-0.6	-0.4	-0.1	-0.1
Quebec	-0.1	-0.3	-0.2	-0.1	-0.1
Ontario	-0.1	0.1	0.2	-0.1	-0.1
Manitoba	-0.4	-0.8	-0.4	-0.2	-0.3
Saskatchewan	-0.9	-0.5	-1.2	-0.4	-0.7
Alberta	0.1	1.6	0.8	0.3	0.5
British Columbia	1.2	0.0	-0.2	0.2	0.4

Source: Statistics Canada, Longitudinal Administrative Data.

higher productivity (Sharpe and Ershov 2007).[6] On the other hand, interprovincial migration tends to increase provincial skills disparities (Coulombe and Tremblay 2006) and leads to a redistribution of human capital from poorer to richer provinces (Coulombe 2006). While personal characteristics are significant predictors of migration probability (for example, younger individuals, immigrants and Aboriginal people are more likely to migrate), the effects of these characteristics vary by destination (Dion and Coulombe 2008).[7]

The longitudinal databank used in this study allows the analysis of a host of pre- and post-move characteristics (see *Data source and definitions*). This paper investigates the factors prior to migration that affect the probability of moving and, in particular, the effect, if any, of initial labour-related factors (earnings and receipt of social assistance or EI benefits) or environmental factors (like the unemployment rate in the year prior to the move) on the decision to migrate. It then compares the labour market gains of migrants and non-migrants.

Previous papers using the same databank for the years 1982 to 1995 concluded that interprovincial migration was positively related to the provincial unemployment rate and more common among individuals with low earnings or receiving social assistance or EI benefits, and that interprovincial mobility was associated with significant and sometimes substantial increases in earnings (Finnie 1999, 2001 and 2004). This paper updates and expands the analysis with more recent data (to 2004).

Migration rates vary widely by province

On an annual basis, relatively few people move from one province to another. From 1993 to 2004, the annual migration rate for those age 20 to 54 never exceeded 1.1% (Table 1). What's more, the migration rates seem to be declining since the late 1990s and the migration rate for 2004 (0.9%) was the lowest recorded for the whole period. This is consistent with a recent study that showed, using the censuses from 1971 to 2006, a general downward trend in mobility rates—whether a change of address, a change of municipality or a change of province was used as the measure (Dion and Coulombe 2008)—although more recent annual data suggest that interprovincial migration rates have started to rise again (Milan and Martel 2008).

The rates vary widely by province and some provinces are faced with particularly high out-migration. Newfoundland and Labrador, Prince Edward Island and Saskatchewan generally had the high-

Table 2 The patterns of interprovincial mobility, persons age 20 to 54

	Residence in 2004									
	Newfound-land and Labrador	Prince Edward Island	Nova Scotia	New Bruns-wick	Quebec	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia
Residence in 1992					%					
Newfoundland and Labrador	86.5	0.2	1.9	0.7	0.2	5.1	0.2	0.1	4.0	1.0
Prince Edward Island	0.4	89.4	2.7	1.7	0.6	2.7	0.1	0.1	1.6	0.8
Nova Scotia	0.5	0.4	90.1	1.4	0.5	3.9	0.2	0.1	1.8	1.2
New Brunswick	0.2	0.3	1.6	91.2	1.4	2.9	0.2	0.1	1.4	0.7
Quebec	0.0	0.0	0.1	0.1	97.4	1.8	0.0	0.0	0.2	0.3
Ontario	0.1	0.1	0.3	0.2	0.7	96.4	0.2	0.1	0.7	1.2
Manitoba	0.0	0.0	0.2	0.1	0.2	2.5	90.1	1.1	3.1	2.7
Saskatchewan	0.0	0.0	0.1	0.1	0.2	1.3	1.1	87.5	7.2	2.6
Alberta	0.1	0.0	0.3	0.2	0.3	2.0	0.5	1.1	91.2	4.4
British Columbia	0.1	0.0	0.2	0.1	0.3	1.7	0.4	0.5	3.6	93.3

Source: Statistics Canada, Longitudinal Administrative Data.

est out-migration rates while Quebec and Ontario had the lowest migration rates.[8] High (low) out-migration rates were often associated with high (low) in-migration rates. For example, Newfoundland and Labrador, Prince Edward Island and Saskatchewan also consistently recorded in-migration rates above the national average. However, in-migration rates were generally not sufficiently high to mitigate the impact of out-migration.

Although in relative terms interprovincial migration is much less frequent in Quebec and Ontario, in absolute terms, the picture is different. A total of 158,450 individuals between the ages of 20 and 54 changed provinces between 2003 and 2004, including a combined 21,050 who migrated out of the three provinces with the largest out-migration rates (Newfoundland and Labrador, Prince Edward Island and Saskatchewan). The latter number is much lower than the number of people who left Ontario (39,800), although it is higher than the number of people who left Quebec (15,400).

Over the period 1993 to 2004, Alberta was the only province to consistently record net migration gains. British Columbia recorded small losses in the late 1990s and early 2000s, a time when its economy was not growing as fast as in the rest of the country. Ontario recorded net losses except for small-to-moderate net gains between 1997 and 2002. With few exceptions, other provinces consistently recorded net losses from 1993 to 2004.

Longer-term migration patterns further illustrate the difficulties experienced by some provinces in retaining population. In Newfoundland and Labrador, only 87% of the 1992 population was still living there in 2004 (Table 2).[9] The other three Atlantic provinces and Saskatchewan also experienced low retention rates. In contrast, 97% of people in Quebec and 96% of those in Ontario in 1992 were still living in their respective provinces 12 years later.

To which provinces migrants go depends largely on the area from which they come. Although proximity is obviously a factor, migrants do not necessarily choose provinces close to their own. Rather, migration patterns seem to be driven to a large extent by economic opportunities. Ontario and Alberta, the country's two richest provinces over the study period, were generally the preferred destinations. For example, migrants from Atlantic Canada were more likely to move to Ontario than anywhere else, with the exception of those from Prince Edward Island, who were slightly more likely to move to Nova Scotia. Migrants from Manitoba, Saskatchewan and British Columbia were more likely to move to Alberta and those from Alberta were more likely to move to British Columbia. Most Quebecers who migrated moved to Ontario, although a sizeable proportion chose to go to Alberta or British Columbia.

Table 3 Longitudinal mobility profiles, persons age 20 to 54

	No moves	Single move	Multiple moves	Move and return
			%	
Canada	**93.7**	**4.0**	**0.4**	**2.1**
Newfoundland and Labrador	83.2	9.3	1.3	6.8
Prince Edward Island	87.2	7.0	1.2	5.0
Nova Scotia	88.0	6.8	1.1	4.4
New Brunswick	89.4	5.9	1.0	3.9
Quebec	96.7	2.1	0.1	1.1
Ontario	95.7	2.7	0.2	1.4
Manitoba	88.9	7.3	0.9	3.1
Saskatchewan	85.3	9.5	1.0	4.7
Alberta	89.4	6.7	0.5	3.6
British Columbia	92.4	5.0	0.4	2.2

Source: Statistics Canada, Longitudinal Administrative Data, 1992 to 2004.

One-third of interprovincial migrants return to province of origin

Longitudinal migration profiles allow migration patterns to be decomposed between moves that appear to be permanent and those that are temporary. Indeed, a significant minority of migrants eventually returns to the province of origin. Overall, 94% of people did not change their province of residence between 1992 and 2004, while 4% moved only once, 2% moved but eventually returned, and a small fraction moved more than once without returning to the province of origin (Table 3). In other words, about a third of all interprovincial migrants returned to the province of origin. Provinces with high out-migration rates were typically those with the highest proportions of returnees. For example, Newfoundland and Labrador had the highest rate of moves with a return (7%), followed by Prince Edward Island (5%). These two provinces also had the highest out-migration rates. Men and women showed virtually no difference in their longitudinal moving patterns.

Personal characteristics important in migration decision

Personal and labour market characteristics are two important sets of factors that may influence the decision to migrate. One way to investigate their effects is to quantify the extent to which each increases or decreases the probability of migrating, all other factors constant (see *Identifying factors behind migration*).

Identifying factors behind migration

To investigate factors that may influence a person's probability of moving to another province in any given year, a logistic regression model was used, with the probability of moving taken to be a function of variables representing basic personal and labour market characteristics. These include province of residence, language, population of the area of residence, type of family and presence of children, earnings, provincial unemployment rate, receipt of social assistance or Employment Insurance benefits, immigrant status and years since arrival, and a series of calendar-year variables to take into account the business cycle and general migration trends.[10] Separate regressions were run for eight age-sex groups.

As might be expected, younger individuals were much more likely to move than older people (Tables 4 and 5). For example, the probability of moving for those between the ages of 20 and 24 was close to five times higher than for those between 45 and 54. Young individuals are much more likely to experience events such as starting or finishing a postsecondary program, changing jobs or marrying, all of which often involve migration (Dion and Coulombe 2008).

Even after controlling for all other characteristics, individuals in Quebec and Ontario were much less likely to move than those in any other province. Individuals in the Prairie provinces and British Columbia had a probability of moving two to five times higher than those in Ontario. Individuals in Saskatchewan in particular had a very high probability of moving. Interestingly, after controlling for all other observable characteristics, including the provincial unemployment rate, people in Newfoundland and Labrador were not much more likely to migrate than those living in Ontario. This suggests that the very high out-migration rates recorded for Newfoundland and Labrador were mostly the result of a combination of characteristics as opposed to merely a provincial effect.

The interaction of language and province of residence seems to play a very important role in the probability of moving. In particular, English-speaking Quebecers were up to ten times more likely to move than other Canadians. This contrasts with the very low migration rates in general for people living in Quebec, suggesting that Francophone Quebecers were substantially less likely to leave their province than other Canadians. French-speaking individuals living outside Quebec were up to three times more likely to move than other

Table 4 Logistic regression for the probability of interprovincial migration for men

Age	20 to 24	25 to 34	35 to 44	45 to 54
	change in probability from baseline (%)			
Province				
Ref. - Ontario				
Newfoundland and Labrador	177.5*	64.4*	21.5*	45.4*
Prince Edward Island	131.9*	75.1*	30.5*	48.9*
Nova Scotia	181.8*	153.5*	130.5*	93.5*
New Brunswick	104.9*	55.8*	40.7*	21.9*
Quebec	-70.2*	-68.1*	-69.0*	-71.8*
Manitoba	208.3*	239.4*	275.5*	233.4*
Saskatchewan	400.7*	371.1*	367.1*	342.6*
Alberta	195.1*	231.8*	254.2*	253.9*
British Columbia	112.9*	115.1*	107.3*	93.4*
Minority language				
Ref. - all other				
English in Quebec	647.0*	726.2*	882.5*	935.6*
Francophone outside Quebec	105.2*	210.8*	206.5*	200.9*
Area of residence				
Ref. - 500,000 and over				
100,000 to 499,999	2.4*	2.4*	11.7*	14.0*
30,000 to 99,999	18.0*	7.1*	17.4*	22.9*
15,000 to 29,999	31.5*	17.4*	23.7*	23.1*
1,000 to 14,999	12.9*	5.0*	11.1*	7.2*
Rural area	-7.5*	-22.9*	-18.8*	-8.1*
Family type				
Ref. - married with children				
Married, no children	11.2*	35.5*	27.3*	20.3*
Lone parent	1.9	14.1*	24.4*	27.4*
Single	72.9*	79.9*	62.2*	86.1*
Earnings				
Ref. - $25,000 to $50,000				
No earnings	1.0	28.0*	61.7*	73.5*
$1 to $25,000	22.0*	18.0*	34.0*	44.0*
$50,000 to $100,000	-6.5*	14.4*	36.2*	21.6*
Over $100,000	18.8	18.3*	96.6*	115.0*
Unemployment rate[1]	9.6*	10.5*	11.4*	9.4*
Social assistance[2]	9.9*	20.0*	29.6*	15.1*
Employment insurance[2]	-0.1	7.6*	30.5*	50.2*
Years since immigration				
Ref. - non-immigrant				
One	-3.5	21.8*	89.5*	121.9*
Two	-19.2*	35.8*	112.4*	104.4*
Three	-30.6*	12.2*	68.4*	92.6*
Four	-37.3*	1.1	54.6*	53.2*
Five	-30.6*	-7.4*	41.5*	51.4*
Six	-39.0*	-13.3*	39.5*	27.9*
Seven	-35.3*	-18.0*	12.6*	31.3*
Eight	-35.2*	-26.0*	9.2*	20.1*
Nine	-40.7*	-26.0*	17.1*	1.0
Ten or more	-31.3*	-27.4*	-14.1*	-2.0

* statistically significant from the reference group (ref.) at 0.01 level or better
1. Probabilities are evaluated using the 2004 unemployment rate of 7.2%, the last available year. The marginal effect for the unemployment rate is an increase of one percentage point.
2. Recipient versus non-recipient.
Source: Statistics Canada, Longitudinal Administrative Data, 1992 to 2004.

Canadians, suggesting a general minority-language effect affecting both Anglophones in Quebec and Francophones outside Quebec, with the effect being stronger for the former.

No clear linear relationship was seen between the population of the area of origin and the probability of migration. In fact, people living in centres with a population exceeding 500,000 and those in rural areas had the lowest migration probabilities across all age-sex groups. Higher probabilities of migration were found for small towns and small to medium-sized urban centres, although the differences were rather small. For example, the probability of moving for men between the ages of 35 and 44 living in small towns (population less than 15,000) was only 11% higher than for their counterparts in an urban centre with a population of 500,000 or more.

Moving is typically more difficult and more costly for a family with children than for a family without children. Indeed, unattached individuals and couples without children had a higher probability of moving than couples with children, regardless of sex or age, although the difference has diminished over time.[11]

While older immigrants were generally more likely to migrate than their non-immigrant contemporaries, younger immigrants were less likely to migrate. However, for older immigrants in particular, as time in Canada increased, the likelihood of moving tended to converge with that of the Canadian-born. For example, in their first full year here, immigrant men or women age 45 to 54 were respectively 122% and 81% more likely

Table 5 Logistic regression for the probability of interprovincial migration for women

Age	20 to 24	25 to 34	35 to 44	45 to 54
	change in probability from baseline (%)			
Province				
Ref. - Ontario				
Newfoundland and Labrador	159.1*	58.1*	19.5*	42.1*
Prince Edward Island	120.0*	70.5*	30.5*	43.0*
Nova Scotia	174.4*	149.7*	130.6*	92.1*
New Brunswick	98.7*	53.5*	40.0*	20.5*
Quebec	-70.4*	-68.2*	-68.8*	-72.0*
Manitoba	206.2*	240.5*	276.7*	234.2*
Saskatchewan	405.3*	372.4*	367.0*	340.6*
Alberta	192.0*	230.4*	252.3*	251.9*
British Columbia	109.4*	114.1*	107.2*	92.6*
Minority language				
Ref. - all other				
English in Quebec	634.9*	721.2*	877.1*	930.9*
Francophone outside Quebec	108.4*	210.4*	207.0*	206.0*
Area residence				
Ref. - 500,000 and over				
100,000 to 499,999	1.4	2.1*	11.2*	13.5*
30,000 to 99,999	17.6*	6.3*	16.3*	23.1*
15,000 to 29,999	32.1*	16.3*	22.6*	22.4*
1,000 to 14,999	12.1*	4.2*	10.5*	6.6*
Rural area	-7.9*	-23.1*	-19.9*	-9.7*
Family type				
Ref. - married with children				
Married, no children	11.2*	35.7*	27.4*	20.9*
Lone parent	3.7*	17.2*	26.9*	29.8*
Single	67.0*	77.7*	57.9*	84.0*
Earnings				
Ref. - $25,000 to $50,000				
No earnings	4.1*	30.7*	66.2*	79.1*
$1 to $25,000	24.5*	19.0*	35.8*	47.7*
$50,000 to $100,000	-7.6*	14.3*	35.1*	19.9*
Over $100,000	6.5	17.9*	95.2*	112.6*
Unemployment rate[1]	10.4*	10.8*	11.5*	9.6*
Social assistance[2]	7.2*	16.9*	25.8*	10.7*
Employment insurance[2]	-2.3*	6.0*	28.9*	46.9*
Years since immigration				
Ref. - non-immigrant				
One	-17.6*	0.7	50.4*	81.4*
Two	-20.9*	33.9*	108.2*	103.7*
Three	-27.8*	12.2*	67.6*	94.1*
Four	-36.3*	-0.6	52.0*	53.9*
Five	-31.8*	-7.4*	40.6*	46.5*
Six	-41.2*	-13.7*	39.2*	26.8*
Seven	-35.1*	-18.8*	9.9*	31.1*
Eight	-37.3*	-27.4*	7.3	15.6*
Nine	-38.9*	-27.2*	15.6*	3.8
Ten or more	-30.4*	-27.3*	-15.0*	-2.7

* statistically significant from the reference group (ref.) at 0.01 level or better
1. Probabilities are evaluated using the 2004 unemployment rate of 7.2%, the last available year. The marginal effect for the unemployment rate is an increase of one percentage point.
2. Recipient versus non-recipient.
Source: Statistics Canada, Longitudinal Administrative Data, 1992 to 2004.

to migrate than their Canadian-born counterparts. However, after nine years, the effect became statistically insignificant.

The labour market and mobility decisions

Labour market characteristics were included in the regression to quantify the extent to which the probability of moving varies as labour market conditions vary and, in particular, to understand how these conditions affect mobility decisions. Labour market conditions have an important effect on the probability of migrating. An earlier study, covering 1982 to 1995, found similar relationships between labour market characteristics and the probability of moving, indicating that individuals responded to worsening labour market conditions by being more likely to migrate (Finnie 2004).

Three of the four variables used—earnings, receipt of social assistance and receipt of EI benefits—capture individual conditions, whereas the fourth, the provincial unemployment rate, captures labour market conditions.[12]

Results for all four variables suggest that people move away from relative hardship. For example, the lower a person's earnings or the higher the provincial unemployment rate, the more likely they are to migrate, arguably to find better-paying jobs or generally better economic conditions. In some cases, the effects are substantial.

People with no or little earnings were generally much more likely to migrate than those with earnings between $25,000 and $100,000. Individuals with no earnings had the highest probability of migrating among men and women

age 25 to 34 and had high probabilities in all other age-sex groups. For example, individuals without earnings and age 35 to 44 were more likely to migrate than those whose earnings were between $25,000 and $50,000—62% more likely among men and 66% among women. Individuals with earnings between $1 and $25,000 also had relatively high migration probabilities. Interestingly, while individuals with little or no earnings were more likely to migrate, so were those with very high earnings (over $100,000).

Receiving social assistance was also associated with higher probabilities of migrating to another province, which is consistent with the findings on earnings. Men and women between the ages of 35 and 44 saw the greatest effect—being 30% and 26%, respectively, more likely to migrate than those not receiving social assistance. The effect was generally lower for younger individuals (age 20 to 24), probably because episodes of receiving social assistance for them tend to be more transitory in nature and shorter in duration.

Receiving EI benefits may reduce market incentives for people to move from areas with poor labour market conditions. The results from the regressions suggest that this effect is not sufficient to overcome others, as individuals in receipt of EI were generally much more likely than non-recipients to migrate. This was especially true for individuals age 35 to 54. In particular, male and female EI recipients age 45 to 54 were 50% and 47%, respectively, more likely to move to another province.

Perhaps the single most informative indicator of a provincial labour market is its unemployment rate. Results from the regressions show that people react very strongly to the unemployment rate. Across provinces, as the unemployment rate rose by one percentage point, the probability of migration increased by about 10%. This was very consistent across all age-sex groups and the effect was never less than 9.4%. This is a potentially strong effect given that provincial unemployment rates tend to vary. For example, in 2003 rates ranged from 5.0% in Manitoba to 16.5% in

Table 6 Mean earnings in years 1 and 3

	Year 1		Year 3		Change	
	Non-migrant	Migrant	Non-migrant	Migrant	Non-migrant	Migrant
	2004 ($)				%	
Men, age 20 to 54	39,300	40,400	42,300	46,500	7.6	15.1
Newfoundland and Labrador	27,000	20,700	28,500	36,400	5.6	75.8
Prince Edward Island	27,600	26,400	29,000	32,500	5.1	23.1
Nova Scotia	32,400	34,400	34,000	43,000	4.9	25.0
New Brunswick	30,700	33,300	32,300	41,400	5.2	24.3
Quebec	34,800	37,600	37,100	46,400	6.6	23.4
Ontario	43,500	47,700	47,300	51,600	8.7	8.2
Manitoba	33,700	36,400	35,900	43,100	6.5	18.4
Saskatchewan	34,500	34,600	36,700	43,500	6.4	25.7
Alberta	45,700	46,400	50,200	49,400	9.8	6.5
British Columbia	39,800	38,700	42,000	44,500	5.5	15.0
Women, age 20 to 54	21,200	19,700	22,900	22,000	8.0	11.7
Newfoundland and Labrador	14,400	11,300	15,500	17,500	7.6	54.9
Prince Edward Island	17,700	15,100	19,100	19,300	7.9	27.8
Nova Scotia	16,800	16,700	18,000	21,000	7.1	25.7
New Brunswick	16,100	15,500	17,300	19,700	7.5	27.1
Quebec	19,400	18,600	20,800	22,500	7.2	21.0
Ontario	23,500	23,700	25,500	25,000	8.5	5.5
Manitoba	19,600	18,000	21,100	20,400	7.7	13.3
Saskatchewan	19,000	16,700	20,600	20,100	8.4	20.4
Alberta	21,700	20,000	23,700	21,100	9.2	5.5
British Columbia	21,400	20,200	22,900	21,500	7.0	6.4

Note: Years 1 and 3 correspond to the year prior to the move and the year following the move.
Source: Longitudinal Administrative Data, 1992 to 2004.

Newfoundland and Labrador. This result suggests that significant reductions in a province's unemployment rate could help reduce its out-migration rate.

The effect of migration on earnings

Just as important as understanding the characteristics and the conditions that can lead to migration is determining what happens after the move. Since worsening labour market conditions seem to increase the odds of migrating, it is worth investigating whether the situation of migrants actually improves in their new province. One useful measure is comparing post-move earnings with their pre-move level.

Migrants generally enjoyed greater earnings increases than non-migrants, especially those leaving any Atlantic province, Quebec or Saskatchewan (Table 6). Patterns for men and women were similar, although the differences between migrants and non-migrants tended to be smaller for women. For men, migrants on average experienced an earnings growth of 15% from the year prior to migration to the year following migration, compared with 8% for non-migrants. However, the differences were much greater in the Atlantic provinces, Quebec and Saskatchewan. The biggest difference was found in Newfoundland and Labrador, where migrants recorded earnings growth of 76%, compared with 6% for non-migrants. No evidence of a positive effect on earnings was seen for migrants from Ontario or Alberta. The average earnings increase for women from the year prior to migration to the year after migration was 12%, versus 8% for non-migrants. As was the case for men, women leaving any Atlantic province, Quebec or Saskatchewan experienced much greater earnings growth than women who stayed, whereas no positive difference was found for Ontario, Alberta or British Columbia.

Younger migrants from relatively poor provinces enjoy greater benefits

Regression analysis was also used to compare the earnings growth of migrants and non-migrants in order to account for differences in personal characteristics (see *Earnings effects models*). The earnings increase associated with migration was greater for younger individuals migrating from provinces where earnings were relatively lower than for other migrants (Tables 7 and 8). The earnings effect of migrating was higher in all models for younger than for older individuals. In other words, young migrants leaving provinces with generally lower earnings, presumably to go to provinces where earnings are generally higher, typically see their earnings profile improve as they successfully integrate into the new labour market. Patterns for men and women were similar, although, again, the migration effects tended to be smaller for women. The results were also consistent with the earlier study covering 1982 to 1995, which found that the earnings effects of moving from the generally low-income Atlantic provinces were almost uniformly positive and in many cases quite large, with the greatest and most statistically significant effects found for the

Table 7 Fixed effects ordinary least squares regression for earnings, men

Age	20 to 24	25 to 34	35 to 44	45 to 54
	difference in log earnings			
Migrants versus non-migrants				
Newfoundland and Labrador	0.865*	0.583*	0.319*	0.280*
Prince Edward Island	0.429*	0.219*	0.068*	0.007
Nova Scotia	0.496*	0.224*	0.082*	0.062*
New Brunswick	0.449*	0.221*	0.098*	0.036*
Quebec	0.343*	0.212*	0.064*	0.035*
Ontario	0.097*	-0.029*	-0.025*	-0.039*
Manitoba	0.251*	0.107*	0.037*	-0.023
Saskatchewan	0.286*	0.180*	0.088*	0.040*
Alberta	-0.161*	-0.085*	-0.033*	-0.058*
British Columbia	0.092*	0.063*	0.090*	0.079*
Returnees versus non-migrants				
Newfoundland and Labrador	-0.329*	-0.113	-0.127	-0.220
Prince Edward Island	-0.188	-0.032	-0.157	-0.045
Nova Scotia	-0.005	-0.088	0.081	0.026
New Brunswick	-0.408*	-0.040	0.085	-0.053
Quebec	-0.349*	-0.170*	0.060	0.083
Ontario	-0.089	0.071	0.114*	-0.100
Manitoba	0.033	0.039	-0.253*	0.076
Saskatchewan	0.010	-0.085	-0.173*	-0.040
Alberta	0.195*	-0.018	-0.028	0.217*
British Columbia	-0.044	-0.085*	0.008	-0.019

* statistically significant from the reference group (ref.) at 0.01 level or better
Source: Statistics Canada, Longitudinal Administrative Data, 1992 to 2004.

Earnings effects models

Following a previous methodology (Finnie 2001), an ordinary least squares (OLS) regression model was used

$$Ln(y_{t+1}/y_{t-1})=\alpha+\beta X'_{t+1}+\beta_1 Prov_{(t+1)}+\beta_2 Prov_{(t-1)}\bullet MIG'+\varepsilon_{t+1}$$

where the logarithm of the growth rate of earnings between the first full year after the move and the last full year prior to the move is a function of a set of control variables [X'_{t+1}] (language, family type and marital status, age and calendar year), the destination province [$Prov_{(t+1)}$] and an interaction term between the province of origin and the migratory status [$Prov_{(t-1)}\bullet MIG'$], the latter being the main variable of interest. The equation implicitly controls for unobserved fixed effects on earnings, which might be correlated with the probability of moving. Only cases with positive earnings were used.

Five different migratory statuses [MIG'] were defined for each three-year window available from 1992 to 2004 (that is, 1992/1994 through to 2002/2004): non-migrant, migrant, returnee, recent arrival and multiple migrant. If, for simplicity, only three provinces (A, B and C) were considered, the statuses would be the following:

Migratory status definition

	Year 1(t-1)	Year 2(t)	Year 3(t+1)
Non-migrant	A	A	A
Migrant	A	B	B
Returnee	A	B	A
Recent arrival	A	A	B
Multiple migrant	A	B	C

Recent arrival and multiple migrant are only shown to take the full set of migratory possibilities into account and are not discussed. Furthermore, using the preceding example for recent arrivals, if the province in year t+2 were again B, then the model would capture the migration in the next three-year window.

Migrant and returnee status effects are defined against the omitted non-migrant status. The regression outputs are differences in log points. When the coefficients are relatively small (between -0.1 and 0.1), the differences correspond approximately with percentage differences between migratory statuses.

younger age groups (Finnie 2001). However, the generally similar results for men and women are a departure from that study, which found much weaker effects for women than for men. The apparent convergence can arguably be attributed in part to the fuller integration of women in the labour market now than in the 1980s.

The earnings effects for migrants from Quebec were similar to those from Atlantic Canada, with the effect being strong for younger men and to a lesser extent for younger women, while being much weaker, albeit still positive and significant, for older individuals. No evidence of any earnings effect was seen for those migrating from Ontario, except for men age 20 to 24. For all other age groups, the coefficients were slightly negative, suggesting a very modest earnings disadvantage associated with migrating.

Table 8 Fixed effects ordinary least squares regression for earnings, women

Age	20 to 24	25 to 34	35 to 44	45 to 54
	difference in log earnings			
Migrants versus non-migrants				
Newfoundland and Labrador	0.770*	0.157*	0.019	0.135*
Prince Edward Island	0.250*	0.300*	0.049	0.154*
Nova Scotia	0.399*	0.135*	-0.015	0.039*
New Brunswick	0.353*	0.107*	0.049*	-0.034
Quebec	0.327*	0.112*	-0.011	-0.048*
Ontario	0.020	-0.067*	-0.083*	-0.073*
Manitoba	0.185*	-0.046*	-0.066*	-0.096*
Saskatchewan	0.270*	0.022	-0.007	-0.061*
Alberta	-0.101*	-0.146*	-0.059*	-0.060*
British Columbia	-0.040*	-0.067*	-0.046*	-0.003
Returnees versus non-migrants				
Newfoundland and Labrador	-0.942*	0.226	0.197	0.779*
Prince Edward Island	-0.409*	0.040	0.012	-0.279
Nova Scotia	-0.353*	-0.228*	-0.041	0.090
New Brunswick	-0.154	-0.046	0.126	-0.222
Quebec	-0.208	-0.044	-0.427*	0.513*
Ontario	-0.025	0.106	0.302*	0.177*
Manitoba	-0.109	-0.132	-0.063	0.354*
Saskatchewan	-0.296*	0.172	-0.168	0.064
Alberta	0.272*	0.184*	0.062	0.251*
British Columbia	0.057	-0.081	0.064	-0.016

* statistically significant from the reference group (ref.) at 0.01 level or better
Source: Statistics Canada, Longitudinal Administrative Data, 1992 to 2004.

In Manitoba and Saskatchewan, the earnings effect of migrating was important for men age 20 to 34 and women 20 to 24, but was, again, much lower for older men and women and not even significant in some cases. Migrants from the booming province of Alberta, perhaps not surprisingly, did not benefit in terms of earnings, and the effect of migrating was negative across all age groups for both men and women. For men in British Columbia, the effect of migrating was modest, but significant and consistent across all age groups. For women, however, no statistical evidence of any beneficial effect was seen.

Returnees no better off than those staying put

What happens to the earnings of migrants who return to their province of origin? To a certain extent, interprovincial migration could be seen as desirable for poorer provinces if migrants acquired skills and knowledge before returning and contributing to productivity growth. On the other hand, if returnees, after having gained from their interprovincial migration, recorded a subsequent earnings drop to the point where their earnings were no different than those of non-migrants, then the migration would have positive effects only for the province of migration. The latter seems more likely to be the case. The coefficients associated with the migratory status of returnees are generally statistically insignificant across all age-sex groups and provinces. What's more, they appear to be mostly negative, suggesting that the earnings growth of many returnees is lower than for those who never migrated.

Of course, individuals who migrate and return in only three years arguably share certain characteristics not taken into consideration, thus potentially biasing the results. For this reason, longer window periods of five years were constructed, with the migratory statuses of migrants, non-migrants and returnees defined following the same principles as with the three-year window. Results for these regressions found similar earnings effects and still did not suggest any earnings benefit for returnees.

Conclusion

Interprovincial migration is not only a key component of demographic change in Canada, but it also influences the supply of public services and tax revenues, the performance and efficiency of the labour market, and productivity. For individuals, interprovincial migration can be an opportunity to explore new labour markets and potentially get a better job with better pay.

This paper looked at interprovincial migration longitudinally to identify factors prior to migration that affect the probability of moving and quantify the labour market gains associated with migration and how they compare with the results for non-migrants. A descriptive analysis of the extent and direction of migration was also provided.

The analysis provides empirical evidence on the influence of many personal and environmental characteristics on the probability of moving. In particular, it provides strong evidence that individuals in slack local labour markets are inclined to migrate to another province, most likely a province with better potential labour market outcomes. The analysis included measures of earnings, the unemployment rate of the province of origin, and the receipt of EI and social assistance. Improvements in labour market conditions and labour market outcomes of individuals would appear likely to reduce out-migration rates.

Other personal characteristics also had an impact. For example, Francophones outside Quebec and especially Anglophones in Quebec were both more likely to migrate to another province than other Canadians. Younger people were also much more likely to migrate. Interestingly, with all observable characteristics held constant, residents of Newfoundland and Labrador were not much more likely to migrate than other Canadians, which suggests that the high out-migration rates for this province are due to a very large extent to differences in personal and labour market characteristics.

Important earnings effects associated with migration were found: most often migrants had better earnings growth than non-migrants. The effect was larger for younger individuals migrating from provinces where earnings were relatively lower; it was much smaller, even sometimes non-existent, for other migrants. This result suggests that young migrants leaving relatively poorer provinces successfully integrate into their new labour market. However, no similar effect was found for migrants who returned to their home province.

Notes

1. Census of Canada 2001 and 2006.
2. See Finnie 2004 for a survey and a discussion of previous studies.
3. Interregional migration has also been a topic of research in other countries, and especially in Europe. See, for example, Huber 2004.
4. The immigrant indicator and the years since arrival used in the logistic regressions are based on the linked LAD-IMDB (immigration database) file. The IMDB file contains information collected by Citizenship and Immigration Canada from immigrants on their arrival.
5. The province of residence can differ from the province of work, in particular for individuals living in urban areas that straddle more than one province (for example, Ottawa-Gatineau and Lloydminster).
6. Gomez and Gunderson 2007 discusses policy options related to various potential barriers to interprovincial mobility of labour.
7. See Milan and Martel 2008 for a discussion of recent (up to 2007) trends in interprovincial migration.
8. To some extent, migration rates are expected to be inversely proportional to a province's size since intraprovincial mobility is more likely in large provinces.
9. The proportions are calculated by restricting the sample to people living in Newfoundland and Labrador in 1992 and elsewhere in Canada in 2004.
10. Given the limited number of personal characteristics available in the LAD, it was not possible to add potentially relevant variables like education, although it could be argued that part of the education effect would be captured, albeit imperfectly, by earnings.
11. This result contrasts somewhat with that of Dion and Coulombe (2008), who found single individuals to be less likely to migrate than other individuals. However, the authors considered all moves, including intraprovincial moves, and used different sample selection rules.
12. Earnings were represented in the model by the dollar value of employment earnings. The social assistance and unemployment benefits variables are binary indicators of receipt.

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